## REMARKS

Favorable consideration of this Application as presently amended and in light of the following discussion is respectfully requested.

After entry of the foregoing Amendment, Claims 1-20 are pending in the present Application. Claims 1-20 have been amended to address cosmetic matters of form. No new matter has been added.

By way of summary, the Official Action presents the following issues: Claims 9 and 19 stand objected to due to informalities; Claims 1, 2, 4-9, 11, 12, and 14-19 stand rejected under 35 U.S.C. § 103 as being unpatentable over Morishima (EP 0795845) in view of Lindgren (WO 99/65221), and further in view of Pearson (U.S. Patent No. 5,400,434); and, Claims 3, 10, 13, and 20 stand rejected under 35 U.S.C. §103 as being unpatentable over Morishima in view of Lindgren, further in view of Pearson, and yet further in view of official notice.

## INFORMATION DISCLOSURE STATEMENT

**Applicants respectfully direct the Examiner's attention to the Information Disclosure Statement (IDS) filed August 15, 2001. Applicants note that this IDS has yet to be indicated as considered by the Examiner. As such, Applicants respectfully requests that the Examiner provide an initialed Form 1449 in the next communication.**

## OBJECTION TO THE CLAIMS

The outstanding Official Action has objected to Claims 9 and 19 to due to informalities. Applicant has amended Claim 9 and 19 in the manner suggested in the Official Action. Accordingly, Applicant respectfully requests that the objection to these claims be withdrawn.

REJECTION UNDER 35 U.S.C. § 103

The outstanding Official Action has rejected Claims 1, 2, 4-9, 11, 12, and 14-19 under 35 U.S.C. § 103 as being unpatentable over Morishima in view of Lindgren, and further in view of Pearson. The Official Action states that Morishima discloses all of the Applicant's claim limitations, with the exception of generating musical notes by digitally sampling a frequency distribution and altering the pitch of stored audio waveform samples. However, the Official Action cites Lindgren and Pearson as disclosing this more detailed aspect of the Applicant's invention, and states that it would have been obvious to one skilled in the art at the time the invention was made to combine the cited references for arriving at the Applicant's claims. Applicant respectfully traverses the rejection.

By way of background, mobile terminals increasingly employ sound generation technology in which musical melodies are associated with one or more functions of the mobile device. In present systems, the creation of a melody by a user is typically limited in range of one or two octaves, so that the tune for the melody composed by the user is preset and cannot be selected by the user.[1]

In light of at least the above deficiencies in the art, the present invention is provided. With at least the above object in mind, a brief comparison of the claimed invention, in view of the cited references, is believed to be in order.

Applicant's amended Claim 1 recites, *inter alia*, a sound generating device for a mobile terminal, including:

> . . . calculating means for calculating, on the basis of a preset calculation rule, a sound table from the samples of the stored waveform which corresponds to the selected sound by calculating additional samples in between respective adjacent samples of said waveform;
>
> reading means for reading out a number of the samples, but not all of the samples from said calculated sound table, wherein the number of

[1] Application at page 1.

said samples read out varies depending on said selected pitch for said selected sound . . .

Morishima describes a radio paging receiver, including a scale map ROM (7) for memorizing a plurality of musical tone information, a CPU (5) for controlling operation of the paging device, and appropriate amplification and decoding circuitry.[2]

Lindgren describes a mobile telecommunication device with an acoustically programmable ring tone generating circuit (230), the ring tone generating circuit to extract a set of tone-related digital parameters related to the frequency and duration of respective tones in the acoustical signal.[3]

Pearson describes a system in which the pitch of a digitally stored sound waveform is changed by calculating additional interpolation samples between adjacent waveform samples. For example, to produce a frequency 1-half that of the original, interpolated points (119) are added between each of the existing points (115) in a table, as shown in Fig. 12. Since the output sample rate remains at 10 kHz, the additional samples effectively stretch out the signal, in this case doubling the period and halving the frequency as shown by waveform (121) in Fig. 13.[4] In other words, in order to lower the pitch, additional interpolation samples are calculated. Since the output sample rate remains the same (10 kHz), the frequency, and, therefore, the pitch, is lowered.

Conversely, in an exemplary embodiment of the Applicant's invention, as recited in amended Claim 1, a sound generating device is provided, including a reading unit, which reads out a number of the samples, but not all of the samples, from a calculated sound table, wherein the number of samples read out varies depending on the selected pitch for the selected sound. Pearson does not disclose, or suggest, varying a sample rate as it explicitly

[2] Morishima at column 4, line 19 through column 5, line 15.
[3] Lindgren at pages 6-7.
[4] Pearson at column 6, line 67 through column 7, line 6.

requires that the output sample rate remain the same.[5] As such, the output sample rate of Pearson is constant, and is limited with respect to achievable pitch levels. For example, in case that the pitch is lowered too much, aliasing and unnatural sound effects will be caused. Thus, since the pitch variation is limited to a small range adjacent and below the pitch of the sample, Pearson suggests to use several source tables.[6]

As can be appreciated, as a varying sample rate is not disclosed by Pearson and the fixed sample rate teaches away from Applicant's variable sample rate in a way that limits the pitch range (e.g., octaves), Applicant respectfully submits that the cited combination of art neither disclose or suggest Applicant's sound generating device, as recited in amended Claim 1, and, by virtue of dependency, any claim depending therefrom. Likewise, as independent Claim 11 recites substantially similar limitations to that discussed above, Applicant respectfully submits that this claim, and any claim depending therefrom, is likewise allowable over the cited combination of references.

Accordingly, Applicant respectfully requests that the rejection of 1, 2, 4-9, 11, 12, and 14-19 under 35 U.S.C. § 103 be withdrawn.

The outstanding Official Action has rejected Claims 3, 10, 13, and 20 under 35 U.S.C. §103 as being unpatentable over Morishima in view of Lindgren, in view of Pearson, and further in view of official notice. The Official Action states that Morishima discloses all of the Applicant's claim limitations with the exception of generating musical notes by digitally sampling a frequency distribution, altering the pitch of a sound waveform, or utilizing 51 samples for a note waveform. The Official Action cites Lindgren, Pearson, and official notice as describing these more detailed aspects of the Applicant's invention, and states that it would have been obvious to one skilled in the art at the time the invention was made to

[5] Pearson at column 7, lines 2-6.
[6] Pearson at column 7, lines 11-18.

combine the cited references for arriving at the Applicant's claims. Applicant respectfully traverses the rejection.

As noted above, Pearson does not disclose, or suggest, all of the elements of the Applicant's amended claims for which it has been asserted. As neither Lindgren, nor Morishima, remedy the deficiency discussed above, Applicant respectfully submits that a *prima facie* case of obviousness has not been presented. Moreover, with respect to the Official Notice taken at page 6 of the Official Action, Applicant respectfully directs the attention to pages 6-7 of the specification, which describe the particular purpose for the claim features which discusses the number of samples. Moreover, it appears that the Official Action is taking official notice without providing a citation in support of its assertion.

If official notice is being taken, Applicants respectfully submit that official notice alone is not permissible as grounds for rejection in the outstanding Official Action. As stated in the MPEP at § 2144.03(A):

> It would not be appropriate for the examiner to take official notice of facts without citing a prior art reference where the facts asserted to be well known are not capable of instant and unquestionable demonstration as being well-known. For example, assertions of technical facts in the areas of esoteric technology or specific knowledge of the prior art must always be supported by citation to some reference work recognized as standard in the pertinent art. *In re Ahlert*, 424 F.2d at 1091, 165 USPQ at 420-21. (emphasis added)

With regard to the above, Applicants respectfully submit that the features advantageously recited in Claims 3, 10, 13, and 20 are not "capable of instant and unquestionable demonstration as being well-known."

Accordingly, Applicant respectfully requests that the rejection of Claims 3, 10 13, and 20 under 35 U.S.C. §103 be withdrawn.

The outstanding Official Action has rejected Claims 10 and 20 under 35 U.S.C. §103 as being unpatentable over Morishima in view of Lindgren, in view of Pearson, and further in view of official notice. The Official Action states that Morishima discloses all of the Applicant's claim limitations with the exception of generating musical notes by digitally sampling a frequency distribution, altering the pitch of a sound waveform, or utilizing 8 kHz as a sampling rate. The Official Action cites Lindgren, Pearson, and official notice as describing these more detailed aspects of the Applicant's invention, and states that it would have been obvious to one skilled in the art at the time the invention was made to combine the cited references for arriving at the Applicant's claims. Applicant respectfully traverses the rejection.

As noted above, Pearson does not disclose, or suggest, all of the elements of the Applicant's amended claims for which it has been asserted. As neither Lindgren, nor Morishima, remedy the deficiency discussed above, Applicant respectfully submits that a *prima facie* case of obviousness has not been presented. Moreover, it appears that the Official Action is taking official notice without providing a citation in support of its assertion (*See* earlier discussion.).

Accordingly, Applicant respectfully requests that the rejection of Claims 10 and 20 under 35 U.S.C. §103 be withdrawn.

## CONCLUSION

Consequently, in view of the foregoing amendment and remarks, it is respectfully submitted that the present Application, including Claims 1-20, is patently distinguished over the prior art, in condition for allowance, and such action is respectfully requested at an early date.

Respectfully submitted,

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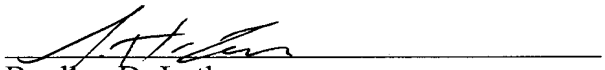

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